

# PATENT ABSTRACTS OF JAPAN

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(21)Application number : 63-148542 (71)Applicant : MATSUSHITA ELECTRIC IND CO LTD

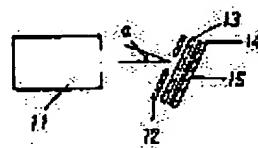
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## (54) MANUFACTURE OF ORIENTING FILM FOR LIQUID CRYSTAL

### (57)Abstract:

PURPOSE: To increase the pretilt angle of liquid crystal molecules by irradiating the main surface of a substrate provided with an X-ray resist layer with a parallel X rays at a specific angle and then dipping the substrate in a liquid developer and rinsing liquid.



CONSTITUTION: The main surface of the substrate 15 provided with the X-ray resist layer 14 is irradiated with the parallel X rays at the specific angle  $\alpha$  and then dipped in the liquid developer and rinsing liquid. The X rays are an electrode wave whose wavelength is 0.1–50&angst; and a soft X rays (4–50&angst; wavelength) is easy to use. The X-ray resist layer 14 is exposed to the X rays and dipped in the liquid developer and rinsing liquid to have an irregular X-ray resist layer, so that the liquid crystal molecules are oriented. Then the X rays are projected slantingly to obtain a saw-tooth X-ray resist layer. Consequently, the pretilt angle of the liquid crystal molecules is increased.